



201 Deerwood Glen Drive
Deer Park, TX 77536
281-478-1300 Telephone
281-476-9209 Facsimile

CORE LABORATORIES

0676-LNAPL-GEO1 KAFB10676

Shaw Environmental 111877-001

Project Number :140705

ASTM D-6733

Project Name: Kirtland AFB

Date Sampled: 6/15/11 2:30:00 PM

Component Name	Weight %	Liq. Volume %	Mole %	Molecular Wt.
Ethane	0.01	0.02	0.05	30.07
Propane	0.01	0.02	0.03	44.10
Isobutane	0.01	0.01	0.03	58.12
N-Butane	0.01	0.01	0.03	58.12
2,2-Dimethylpropane	0.03	0.04	0.06	72.15
Isopentane	0.02	0.03	0.04	72.15
N-Pentane	0.01	0.01	0.02	72.15
2,3-Dimethylbutane	0.03	0.04	0.05	86.18
2-Methylpentane	0.04	0.05	0.07	86.18
3-Methylpentane	0.03	0.04	0.05	86.18
N-Hexane	0.09	0.11	0.16	86.18
2,2-Dimethylpentane	0.01	0.01	0.01	100.20
Methylcyclopentane	0.09	0.10	0.16	84.16
2,4-Dimethylpentane	0.05	0.06	0.07	100.20
Benzene	0.04	0.04	0.08	78.11
3,3-Dimethylpentane	0.01	0.01	0.01	100.20
Cyclohexane	0.18	0.18	0.32	84.16
2-Methylhexane	0.14	0.16	0.21	100.20
2,3-Dimethylpentane	0.15	0.17	0.22	100.20
1,1-Dimethylcyclopentane	0.03	0.03	0.05	98.19
3-Methylhexane	0.19	0.22	0.28	100.20
Cis-1,3-dimethylcyclopentane	0.07	0.07	0.11	98.19
Trans-1,3-dimethylcyclopentane	0.07	0.07	0.11	98.19
3-Ethylpentane	0.01	0.01	0.01	100.20
Trans-1,2-dimethylcyclopentane	0.13	0.14	0.20	98.19
2,2,4-Trimethylpentane	0.29	0.33	0.38	114.23
N-Heptane	0.59	0.69	0.88	100.20
Methylcyclohexane	0.91	0.94	1.38	98.19
1,1,3-Trimethylcyclopentane	0.08	0.09	0.11	112.22
Ethylcyclopentane	0.05	0.05	0.08	98.19
2,5-Dimethylhexane	0.08	0.09	0.10	114.23
2,4-Dimethylhexane	0.10	0.11	0.13	114.23
Trans,cis-1,2,4-trimethylcyclopentane	0.09	0.10	0.12	112.22
3,3-Dimethylhexane	0.02	0.02	0.03	114.23
Trans,cis-1,2,3-trimethylcyclopentane	0.10	0.11	0.13	112.22
2,3,4-Trimethylpentane	0.13	0.14	0.17	114.23

The analytical results, opinions or interpretations contained in this report are based upon information and material supplied by the client for whose exclusive and confidential use this report has been made. The analytical results, opinions or interpretations expressed represent the best judgement of Core Laboratories. Core Laboratories, however, makes no warranty or representation, expressed or implied, of any type, and expressly disclaims same as to the production, proper operations or profitability of any oil, gas, coal, or other mineral property, well or sand in connection with such report is used or relied upon for any reason whatsoever. The report shall not be reproduced, in whole or in part, without the written approval of Core Laboratories.



201 Deerwood Glen Drive
Deer Park, TX 77536



281-478-1300 Telephone
281-476-9209 Facsimile

CORE LABORATORIES

0676-LNAPL-GEO1 KAFB10676

Shaw Environmental 111877-001

Project Number :140705 ASTM D-6733

Project Name: Kirtland AFB

Date Sampled: 6/15/11 2:30:00 PM

Component Name	Weight %	Liq. Volume %	Mole %	Molecular Wt.
Toluene	0.81	0.75	1.31	92.14
2,3,3-Trimethylpentane	0.12	0.13	0.16	114.23
2,3-Dimethylhexane	0.15	0.17	0.20	114.23
2-Methylheptane	0.46	0.53	0.60	114.23
4-Methylheptane	0.17	0.19	0.22	114.23
Cis,trans,1,2,4-trimethylcyclopentane	0.02	0.02	0.03	112.22
Cis-1,3 dimethylcyclohexane	0.40	0.42	0.53	112.22
3-Methylheptane	0.33	0.37	0.43	114.23
Trans-1,4-dimethylcyclohexane	0.20	0.21	0.27	112.22
1,1-Dimethylcyclohexane	0.06	0.06	0.08	112.22
Trans-1-ethyl-3-methylcyclopentane	0.13	0.14	0.17	112.22
Cis-1-ethyl-3-methylcyclopentane	0.04	0.04	0.05	112.22
Trans-1-ethyl-2-methylcyclopentane	0.07	0.07	0.09	112.22
1-Ethyl-1-methylcyclopentane	0.02	0.02	0.03	112.22
Trans-1,2,dimethylcyclohexane	0.23	0.24	0.31	112.22
Trans-1,3,dimethylcyclohexane	0.12	0.12	0.16	112.22
Cis-1,4-dimethylcyclohexane	0.12	0.12	0.15	112.22
N-Octane	1.11	1.26	1.44	114.23
Isopropylcyclopentane	0.03	0.03	0.04	112.22
2,2,5-Trimethylhexane	0.01	0.01	0.01	128.26
2,3,5-Trimethylhexane	0.02	0.02	0.02	128.26
Cis-1-ethyl-2-methylcyclopentane	0.05	0.05	0.07	112.22
Cis-1,2-dimethylcyclohexane	0.05	0.05	0.07	112.22
2,4-Dimethylheptane	0.11	0.12	0.13	128.26
4,4-Dimethylheptane	0.01	0.01	0.01	128.26
Ethylcyclohexane	0.60	0.61	0.80	112.22
2-Methyl-4-ethylhexane	0.05	0.06	0.06	128.26
2,6-Dimethylheptane	0.28	0.31	0.33	128.26
1,1,3-Trimethylcyclohexane	0.31	0.32	0.37	126.24
2,5-Dimethylheptane	0.16	0.18	0.19	128.26
3,5-Dimethylheptane	0.06	0.07	0.07	128.26
C9 Naphthene	0.04	0.04	0.05	126.24
C9 Naphthene	0.02	0.02	0.02	126.24
Ethylbenzene	0.33	0.30	0.46	106.17
Trans,trans,1,2,4-trimethylcyclohexane	0.05	0.05	0.06	126.24
Cis,trans,1,3,5-trimethylcyclohexane	0.21	0.21	0.25	126.24

The analytical results, opinions or interpretations contained in this report are based upon information and material supplied by the client for whose exclusive and confidential use this report has been made. The analytical results, or interpretations expressed represent the best judgement of Core Laboratories. Core Laboratories, however, makes no warranty or representation, expressed or implied, of any type, and expressly disclaims same as to the proper operations or profitability of any oil, gas, coal, or other mineral property, well or sand in connection with such report is used or relied upon for any reason whatsoever. The report shall not be reproduced, in whole or in part without the written approval of Core Laboratories.



201 Deerwood Glen Drive
Deer Park, TX 77536
281-478-1300 Telephone
281-476-9209 Facsimile

CORE LABORATORIES

Project Number :140705

ASTM D-6733

Project Name: Kirtland AFB

Date Sampled: 6/15/11 2:30:00 PM

Component Name	Weight %	Liq. Volume %	Mole %	Molecular Wt.
3,3,4,Trimethylhexane	0.01	0.01	0.01	128.26
Meta-Xylene	0.75	0.69	1.05	106.17
Para-Xylene	0.22	0.20	0.31	106.17
2,3-Dimethylheptane	0.19	0.21	0.22	128.26
3,4-Dimethylheptane D/L	0.07	0.08	0.08	128.26
3,4-Dimethylheptane L/D	0.04	0.04	0.05	128.26
4-Ethylheptane	0.04	0.04	0.05	128.26
4-Methyloctane	0.24	0.27	0.28	128.26
2-Methyloctane	0.36	0.40	0.42	128.26
Cis,cis,1,2,3,trimethylcyclohexane	0.08	0.08	0.09	126.24
3-Ethylheptane	0.08	0.09	0.09	128.26
3-Methyloctane	0.43	0.48	0.50	128.26
Cis,trans,1,2,4,trimethylcyclohexane	0.03	0.03	0.04	126.24
Cis,cis,1,2,4,trimethylcyclohexane	0.03	0.03	0.04	126.24
Ortho-Xylene	0.42	0.38	0.59	106.17
Trans-1-Methyl-2-propylcyclopentane	0.03	0.03	0.04	126.24
Cis-1-ethyl-3-methylcyclohexane	0.52	0.52	0.61	126.24
Trans-1-ethyl-4-methylcyclohexane	0.17	0.17	0.20	126.24
Isobutylcyclopentane	0.05	0.05	0.06	126.24
2,2,6-Trimethylheptane	0.03	0.03	0.03	142.29
1-Ethyl-1-methylcyclohexane	0.02	0.02	0.02	126.24
Cis,trans,1,2,3,trimethylcyclohexane	0.04	0.04	0.05	126.24
Trans,trans,1,2,3,trimethylcyclohexane	0.04	0.04	0.05	126.24
N-Nonane	2.28	2.53	2.65	128.26
Trans-1-ethyl-3-methylcyclohexane	0.04	0.04	0.05	126.24
Trans-1-ethyl-2-methylcyclohexane	0.15	0.15	0.18	126.24
Cis-1-ethyl-4-methylcyclohexane	0.22	0.22	0.26	126.24
Isopropylbenzene	0.13	0.12	0.16	120.19
2,4-Dimethyloctane	0.15	0.17	0.16	142.29
2,6-Dimethyloctane	0.67	0.74	0.70	142.29
2,5-Dimethyloctane	0.06	0.07	0.06	142.29
N-propylcyclohexane	0.52	0.52	0.61	126.24
N-butylcyclopentane	0.14	0.14	0.17	126.24
3,5-Dimethyloctane	0.20	0.22	0.21	142.29
n-Propylbenzene	0.31	0.29	0.38	120.19
3,6-Dimethyloctane	0.24	0.26	0.25	142.29

The analytical results, opinions or interpretations contained in this report are based upon information and material supplied by the client for whose exclusive and confidential use this report has been made. The analytical results, or interpretations expressed represent the best judgement of Core Laboratories. Core Laboratories, however, makes no warranty or representation, expressed or implied, of any type, and expressly disclaims same as to the product proper operations or profitability of any oil, gas, coal, or other mineral property, well or sand in connection with such report is used or relied upon for any reason whatsoever. The report shall not be reproduced, in whole or in part without the written approval of Core Laboratories.



201 Deerwood Glen Drive
Deer Park, TX 77536
281-478-1300 Telephone
281-476-9209 Facsimile

CORE LABORATORIES

Project Name: Kirtland AFB
Date Sampled: 6/15/11 2:30:00 PM

Component Name	Weight %	Liq. Volume %	Mole %	Molecular Wt.
3,3-Dimethyloctane	0.08	0.09	0.08	142.29
1-Methyl-3-ethylbenzene	0.47	0.43	0.58	120.19
1-Methyl-4-ethylbenzene	0.20	0.19	0.25	120.19
2,3-Dimethyloctane	0.26	0.28	0.27	142.29
1,3,5-Trimethylbenzene	0.30	0.28	0.37	120.19
4-Ethyloctane	0.10	0.11	0.10	142.29
C10 Naphthene	0.27	0.27	0.29	140.20
5-Methylnonane	0.12	0.13	0.13	142.29
4-Methylnonane	0.17	0.19	0.18	142.29
1-Methyl-2-ethylbenzene	0.64	0.58	0.79	120.19
2-Methylnonane	0.53	0.58	0.56	142.29
3-Ethyloctane	0.20	0.22	0.21	142.29
1,2,3,5 Tet-methylcyclohexane	0.07	0.07	0.07	140.20
3-Methylnonane	0.54	0.59	0.57	142.29
1,2,3,4 Tet-methylcyclohexane	0.08	0.08	0.09	140.20
C10 Naphthenes	0.18	0.18	0.19	140.20
1,2,4-Trimethylbenzene	0.90	0.82	1.12	120.19
Cis-1-methyl-3-propylcyclohexane	0.33	0.34	0.35	140.27
Cis 1,3 diethylcyclohexane	0.43	0.44	0.46	140.27
Trans-1-methyl-3-propylcyclohexane	0.14	0.14	0.15	140.27
1-Ethyl-2,3-dimethylcyclohexane	0.07	0.07	0.07	140.27
Isobutylbenzene	0.22	0.21	0.24	134.22
sec-Butylbenzene	0.39	0.36	0.43	134.22
N-Decane	3.44	3.76	3.61	142.28
Trans 1,3 diethylcyclohexane	0.04	0.04	0.04	140.27
1,2,3-Trimethylbenzene	0.46	0.41	0.57	120.19
1-Methyl-3-isopropylbenzene	0.26	0.24	0.29	134.22
1-Methyl-4-isopropylbenzene	0.16	0.15	0.18	134.22
Indan (2,3-Dihydroindene)	0.05	0.04	0.06	118.18
1-Methyl-2-isopropylbenzene	0.12	0.11	0.13	134.22
Butylcyclohexane	0.12	0.12	0.13	140.27
1,3-Diethylbenzene	0.28	0.26	0.31	134.22
1-Methyl-3-n-propylbenzene	0.16	0.15	0.18	134.22
1,4-Diethylbenzene	0.05	0.05	0.06	134.22
N-Butylbenzene	1.03	0.96	1.15	134.22
1,3-Dimethyl-5-ethylbenzene	0.57	0.52	0.63	134.22

The analytical results, opinions or interpretations contained in this report are based upon information and material supplied by the client for whose exclusive and confidential use this report has been made. The analytical results, or interpretations expressed represent the best judgement of Core Laboratories. Core Laboratories, however, makes no warranty or representation, expressed or implied, of any type, and expressly disclaims same as to the production, proper operations or profitability of any oil, gas, coal, or other mineral property, well or sand in connection with such report is used or relied upon for any reason whatsoever. The report shall not be reproduced, in whole or in part, without the written approval of Core Laboratories.



201 Deerwood Glen Drive
 Deer Park, TX 77536
 281-478-1300 Telephone
 281-476-9209 Facsimile

CORE LABORATORIES

0676-LNAPL-GEO1 KAFB10676
Project Number :140705
Project Name: Kirtland AFB
Date Sampled: 6/15/11 2:30:00 PM

ASTM D-6733

Shaw Environmental 111877-001

Component Name	Weight %	Liq. Volume %	Mole %	Molecular Wt.
1,2-Diethylbenzene	0.23	0.21	0.26	134.22
1-Methyl-2-n-propylbenzene	0.25	0.23	0.28	134.22
5-Methyldecane	0.32	0.34	0.31	156.31
4-Methyldecane	0.16	0.17	0.15	156.31
1,4-Dimethyl-2-ethylbenzene	0.63	0.57	0.70	134.22
1,2-Dimethyl-3-Ethylbenzene	0.40	0.36	0.44	134.22
C11 Naphthenes	0.73	0.73	0.65	168.30
C11 Paraffins	0.48	0.51	0.42	170.34
N-Undecane	4.42	4.77	4.22	156.31
1,2,4,5-Tetramethylbenzene	0.21	0.19	0.23	134.22
1,2,3,5-Tetramethylbenzene	0.12	0.11	0.13	134.22
C12 Unidentified	5.05	5.07	4.68	161.00
4-Methylindan	0.81	0.68	0.91	132.20
5-Methylindan	0.31	0.26	0.35	132.20
1,2,3,4-Tetramethylbenzene	0.84	0.74	0.93	134.22
Tetralin	0.13	0.11	0.15	132.20
5-Methylundecane	0.35	0.37	0.31	170.34
4-Methylundecane	0.34	0.36	0.30	170.34
2-Methylundecane	0.33	0.35	0.29	170.34
Pentylbenzene	0.61	0.57	0.61	148.25
Naphthalene	0.44	0.35	0.51	128.00
1,1 Dimethylindan	0.48	0.41	0.49	146.22
1,2 Dimethylindan	0.66	0.56	0.67	146.22
1,6 Dimethylindan	0.19	0.16	0.19	146.22
3-Methylundecane	0.37	0.40	0.32	170.34
C11 Aromatic	8.71	8.04	8.77	148.25
1-ethylindan	0.59	0.50	0.60	146.22
2-ethylindan	0.85	0.72	0.87	146.22
N-Dodecane	4.26	4.54	3.73	170.34
1,3,5-triethylbenzene	1.38	1.28	1.27	162.27
1,2,4-triethylbenzene	0.84	0.77	0.77	162.27
2-Methylnaphthalene	0.63	0.53	0.66	142.00
Tridecanes	8.42	8.34	7.18	175.00
N-Tridecane	3.27	3.45	2.65	184.37
1-Methylnaphthalene	0.27	0.21	0.28	142.00
Tetradecanes	3.20	3.13	2.51	190.00

The analytical results, opinions or interpretations contained in this report are based upon information and material supplied by the client for whose exclusive and confidential use this report has been made. The analytical results, or interpretations expressed represent the best judgement of Core Laboratories. Core Laboratories, however, makes no warranty or representation, expressed or implied, of any type, and expressly disclaims same as to the product proper operations or profitability of any oil, gas, coal, or other mineral property, well or sand in connection with such report is used or relied upon for any reason whatsoever. The report shall not be reproduced, in whole or in part without the written approval of Core Laboratories.



201 Deerwood Glen Drive
Deer Park, TX 77536
281-478-1300 Telephone
281-476-9209 Facsimile

CORE LABORATORIES

0676-LNAPL-GEO1 KAFB10676
Project Number :140705
Project Name: Kirtland AFB
Date Sampled: 6/15/11 2:30:00 PM

Shaw Environmental 111877-001

ASTM D-6733

Component Name	Weight %	Liq. Volume %	Mole %	Molecular Wt.
N-Tetradecane	0.83	0.87	0.62	198.39

Pentadecanes	4.33	4.18	3.14	206.00
N-Pentadecane	1.88	1.95	1.32	212.42
Hexadecanes	4.10	3.92	2.76	222.00
N-Hexadecane	0.75	0.78	0.49	226.44
Heptadecanes	1.03	0.98	0.65	237.00
N-Heptadecane	0.16	0.17	0.10	240.47
Pristane	0.03	0.03	0.02	268.52
Octadecanes	0.26	0.25	0.15	257.00
N-Octadecane	0.08	0.08	0.05	254.49
Phytane	0.01	0.01	0.01	282.55
N-Nonadecane	0.01	0.01	0.01	268.52
N-Eicosane	0.01	0.01	0.01	282.55
Unidentified	1.97	2.17	2.09	
Total	100.00	100.00	100.00	
Total Paraffins	16.21	17.68	16.74	
Total Isoparaffins	10.43	11.51	11.66	
Total Naphthenes	9.11	9.28	11.33	
Total Aromatics	28.85	26.09	31.75	
Unclassified	35.41	35.44	28.52	
Total C4	0.02	0.02	0.06	
Total C5	0.06	0.08	0.12	
Total C6	0.50	0.56	0.89	
Total C7	3.22	3.38	4.93	
Total C8	7.08	7.41	9.48	
Total C9	10.61	10.81	12.67	
Total C10	16.13	16.01	17.45	
Total C11	19.10	18.22	18.89	
Total C12	7.87	8.07	6.99	

The analytical results, opinions or interpretations contained in this report are based upon information and material supplied by the client for whose exclusive and confidential use this report has been made. The analytical results, or interpretations expressed represent the best judgement of Core Laboratories. Core Laboratories, however, makes no warranty or representation, expressed or implied, of any type, and expressly disclaims same as to the product proper operations or profitability of any oil, gas, coal, or other mineral property, well or sand in connection with such report is used or relied upon for any reason whatsoever. The report shall not be reproduced, in whole or in part without the written approval of Core Laboratories.



201 Deerwood Glen Drive
Deer Park, TX 77536
281-478-1300 Telephone
281-476-9209 Facsimile

CORE LABORATORIES

0676-LNAPL-GEO1 KAFB10676
Project Number :140705
Project Name: Kirtland AFB
Date Sampled: 6/15/11 2:30:00 PM

Shaw Environmental 111877-001

ASTM D-6733

Component Type	Weight %	Liq. Volume %	Mole %	Molecular Wt.
C4 Paraffin	0.01	0.01	0.03	
C5 Paraffin	0.01	0.01	0.02	
C6 Paraffin	0.09	0.11	0.16	
C7 Paraffin	0.59	0.69	0.88	

C8 Paraffin	1.11	1.26	1.44
C9 Paraffin	2.28	2.53	2.65
C10 Paraffin	3.44	3.76	3.61
C11 Paraffin	4.42	4.77	4.22
C12 Paraffin	4.26	4.54	3.73
C4 Isoparaffin	0.01	0.01	0.03
C5 Isoparaffin	0.05	0.07	0.10
C6 Isoparaffin	0.10	0.13	0.17
C7 Isoparaffin	0.56	0.64	0.81
C8 Isoparaffin	1.85	2.08	2.42
C9 Isoparaffin	2.16	2.40	2.52
C10 Isoparaffin	3.35	3.68	3.51
C11 Isoparaffin	0.96	1.02	0.88
C12 Isoparaffin	1.39	1.48	1.22
C6 Naphthene	0.27	0.28	0.48
C7 Naphthene	1.26	1.30	1.93
C8 Naphthene	2.41	2.50	3.21
C9 Naphthene	2.71	2.72	3.22
C10 Naphthene	1.73	1.75	1.84
C11 Naphthene	0.73	0.73	0.65
C6 Aromatic	0.04	0.04	0.08
C7 Aromatic	0.81	0.75	1.31
C8 Aromatic	1.72	1.57	2.41
C9 Aromatic	3.46	3.16	4.28
C10 Aromatic	7.61	6.82	8.49
C11 Aromatic	12.99	11.70	13.14
C12 Aromatic	2.22	2.05	2.04

Mol WT of Sample, gm/mol 149.25
Density of Sample, gm/cc 0.8030

The analytical results, opinions or interpretations contained in this report are based upon information and material supplied by the client for whose exclusive and confidential use this report has been made. The analytical results, or interpretations expressed represent the best judgement of Core Laboratories. Core Laboratories, however, makes no warranty or representation, expressed or implied, of any type, and expressly disclaims same as to the production, proper operations or profitability of any oil, gas, coal, or other mineral property, well or sand in connection with such report is used or relied upon for any reason whatsoever. The report shall not be reproduced, in whole or in part, without the written approval of Core Laboratories.